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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,763	12/08/2003	Chung Nam Whang	2632-0144P	9360
2292	7590	02/09/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			JOLLEY, KIRSTEN	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/728,763

Applicant(s)

WHANG ET AL.

Examiner

Kirsten C Jolley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-11,14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-11,14 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The 35 USC 102(a) rejections set forth in the prior Office action have been withdrawn in response to Applicant's amendments to the claims.
2. Upon further search and consideration, the prior art of Imura et al. was found, and new rejections over Imura et al. are set forth below.

### ***Claim Objections***

3. Claims 10 and 14 are objected to because of the following informalities:  
  
The period is missing at the end of claim 10.  
  
In claim 14, line 7, it appears that "an second" should be --a second--.  
  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 2-5, 8-9, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2, lines 2-3, the phrase "wherein the magnetic layer comprises an rare earth material selected at least one of Pt, Pd, Au, and Tb [sic]" is improper Markush language. The

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Examiner suggests replacing the phrase with –wherein the magnetic layer comprises at least one rare earth material selected from the group consisting of Pt, Pd, Au, and Tb--.

Claim 3 recites the limitation "the first easy axis" in line 2. There is insufficient antecedent basis for this limitation in the claim.

In claims 4, 8, and 11, lines 2-3, the phrase “wherein the magnetic layer comprises a transition metal selected at least one of Co, Ni, and Fe” is improper Markush language. The Examiner suggests replacing the phrase with –wherein the magnetic layer comprises at least one transition metal selected from the group consisting of Co, Ni, and Fe--.

In claims 5 and 9, lines 2-3, the phrase “wherein the beam comprises an inert gas selected at least one of He, Ne, Ar, Xe, and Kr” is improper Markush language. The Examiner suggests replacing the phrase with –wherein the beam comprises at least one inert gas selected from the group consisting of He, Ne, Ar, Xe, and Kr--.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 4-6, and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Imura et al. (US 4,600,488).

As to claims 1, 6, and 10, Imura et al. discloses a method of manufacturing a magnetic film comprising: forming a magnetic layer on a substrate; treating a first area of the magnetic

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layer with an ion beam in a magnetic field to form a first easy axis having a first direction; and treating the second area of the magnetic layer with an ion beam in a magnetic field to form a second easy axis having a second direction (see Figure 11 and col. 5, lines 50-61). It is noted that Applicant's use of broad "comprising" language is open language and is inclusive of additional process steps and limitations, including the use of an ion beam *in a magnetic field* in the first area.

As to claims 4, 8, and 11, Imura et al. teaches that the magnetic layer comprises Ni-Fe alloy (col. 3, line 33). As to claims 5 and 9, Imura et al. teaches that the ion beam may be an inert gas including He or Ne (Table 1).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. ~~Claims 2-3 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over~~  
Imura et al. (US 4,600,488).

As to claim 2, magnetic layers comprising the claimed rare earth materials are well known in the art. It would have been obvious to have used a magnetic film having the claimed materials with the expectation of successful results in the absence of a showing of criticality.

As to claim 3, it would have been obvious to one having ordinary skill in the art to have determined the optimum angle difference through routine experimentation depending upon a

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number of factors including the degree of applied magnetic field, the particular substrate material, the amount of ion beam implantation, etc.

As to claims 14 and 15, Imura et al. teaches using a mask to separately treat different areas (col. 4, lines 42-65). Imura et al. lacks a teaching of rotating the magnetic layer. It would have been obvious for one having ordinary skill in the art to have rotated the substrate with the expectation of successful results in order to achieve uniform implantation, particularly in the case of using a circular substrate. For example, the embodiment of Figure 12 rotates the substrate during ion implantation and application of the magnetic field.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ogawa (US 4,751,100) is cited for its teaching of implanting an ionized material into a ferromagnetic metal layer on a substrate in the presence of a magnetic field on the substrate (col. 4, line 32 to col. 5, line 22).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P Beck can be reached on 571-272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kirsten C Jolley  
Primary Examiner  
Art Unit 1762

kcj